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ABSTRACT

Focusing on blacks, the study examined the effect of neighborhood racial composition on the relationship between socioeconomic status and current fertility. The sample of 611 black and 5,027 white once-married women aged 20-29 living with their husbands was drawn from the neighborhood characteristics files of the 1970 Public Use Samples of the U.S. Census for Alabama, Kentucky, Mississippi, and Tennessee. Social Characteristics were measured by husband's income, education, and occupation; and residence (a set of dummy variables based on location in either a rural, urban, or metropolitan area). Minority group status was measured by a dummy variable. Neighborhood of residence was categorized into a set of dummy variables based on racial and ethnic composition: 0-15% black, 16-49% black, and 50-100% black. Control variables were wife's age, her age at marriage, her employment status (a dummy variable), and her education. Multiple regression analysis was used to test the data. Findings indicated that minority group status had an effect on fertility, an effect that varied between rural, urban, and metropolitan areas. In each area, blacks had higher fertility, but the way that the other variables affected fertility varied. In rural areas, there was an independent effect of education on fertility, and an interaction effect between income and race on fertility. In urban areas, there was an interaction effect between occupation and race on fertility. In metropolitan areas, neighborhood of residence had an independent effect on fertility. (NQ)

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THE EFFECT OF NEIGHBORHOOD RACIAL COMPOSITION ON THE RELATIONSHIP BETWEEN MINORITY GROUP STATUS AND CURRENT FERTILITY

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Paper presented at the annual meetings of the Southwestern Sociological Association, Dallas, Texas, March 31, 1977.

Recent research on minority group fertility has sought to explain differential reproductive patterns in terms of either social characteristics (i.e., occupation, education, income, rural-urban residence) or minority group membership per se. Although earlier literature stressed that observed racial and ethnic fertility differences were largely attributable to concurrent differences in socioeconomic status and residence (see Lee and Lee, 1959:231; Petersen, 1961:226; Freedman et al., 1961: 608), in the last few years evidence has suggested that other forces may be at work. Goldscheider and Uhlenberg (1969), whose paper is the principal stimulus of the current reassessment, propose that a major contributor to reproductive variability is "the independent role of minority group status" (1969:369).

A number of investigations have sought to substantiate these two viewpoints, which have come to be labelled the "characteristics hypothesis" and the "minority group status hypothesis." Most studies have supported the latter hypothesis (see Sly, 1970, for the partial exception), but various problems in these designs suggest that additional research be undertaken. For example, some studies have included only one socioeconomic variable, either income (e.g., Bean and Wood, 1974), or education (e.g., Ritchey, 1975). Of those that have measured income, education, and occupation, most have failed to provide for the stimultaneous control of all three (e.g., Sly, 1970; Roberts and Lee, 1975). In addition, the issue of rural-urban residence has frequently been ignored (e.g., Ritchey; Bean and Wood; Sly,

Kennedy, 1973). The present study seeks to correct these shortcomings, while at the same time addressing two other important problems: the issue of what factors underlie the often-discovered minority group status effect, and the issue of what age group of women offers the most appropriate universe from which to draw a sample. The study will focus on one minority group[1], black Americans.

EXPLANATIONS OF MINORITY FERTILITY: TOWARD A NEIGHBORHOOD APPROACH

The majority of studies have put forth either a priori or post hoc explanations for anticipated or observed minority group fertility differentials. If education, occupation, income, and rural-urban residence differentials fail to account for fertility variations, what other variables could be responsible? Some of the studies have emphasized variables beyond the scope of their data, in particular, cultural factors such as values and norms (e.g., see Sly; Roberts and Lee). Goldscheider and Uhlenberg develop an elaborate explanation which hinges on the assumption that minority couples may acquire certain characteristics of the majority population without concurrently acquiring others. Consequently, a couple may find itself assimilated on some dimensions (e.g., education, occupation), but not on others (e.g., primary group attachments, residence). This lack of consistency places the minority couple in a marginal position, which in turn produces feelings of insecurity. To counteract such insecurities and preserve the gains already made, such couples may alter their childbearing.

At least two other investigations (Kennedy, 1973; Ritchey, 1975) have considered the possibility that the sociocultural context in which reproduction occurs offers an alternative explanation. Kennedy examined Catholic and Protestant fertility in the Republic of Ireland and Northern Ireland. His investigation suggested that religion accounts for most of the differential in both societies, but that, in Northern Ireland, a small minority group status effect exists. Kennedy attributes this finding to the interaction of minority status and the social context: Catholics as a minority group in the North face different societal circumstances than do the minority Protestants in the Republic.

Ritchey investigated minority fertility in the United States, taking into account the level of racial equality in each subject's state of residence. At the individual level, strong support for the minority group status effect was found; both race, and race in interaction with education, were significantly associated with fertility. Nevertheless, the magnitude of those effects increased linearly with increases in the degree of racial inequality, indicating again that the social context influences the relationship between minority status and fertility.

Kennedy and Ritchey's findings thus support the view that at least part of the explanation for apparent minority group status effects on fertility rests in factors outside of the individual actors themselves. The present investigation extends this view, but narrows the focus to a smaller arena of interaction--the neighborhood. Specifically, I am concerned

with the effect that the racial and ethnic composition of neighborhoods may have on the fertility of its residents. Traditionally, ghettos, i.e., physical concentrations of minority persons, have served as reservoirs of whatever characteristics are unique to a particular racial or ethnic group. If dispersion occurs, then assimilation is more likely. To the extent that minority groups hold distinctive reproductive values, then those values should express themselves more sharply in areas of minority concentration, less sharply in areas with few minority residents. Some form of geographical propinquity is requisite for the development and preservation of group norms and patterns of association. Durkheim noted the importance of geographical closeness for "social concentration," and coined the term "dynamic density" to describe the extent to which groups share a common life (1950:113). Although physical density and dynamic density are separate concepts, the former can serve as an adequate operational measure of the latter. The present study will use minority racial and ethnic composition of neighborhoods as a measure of the normative context of reproduction.

The hypotheses to be tested are formally presented below. The first hypothesis is based on the usual empirical finding that the higher the status, the lower the fertility; the second hypothesis derives from findings of previous research on minority group status and fertility (e.g., Bean and Wood, 1974, Ritchey, 1975).

1. The relationship between socioeconomic status and fertility is negative for both majority and minority groups, i.e., the higher the status, the lower the fertility.

2. The relationship between socioeconomic status and fertility is more negative for each minority group than for the majority population, i.e., there is an interaction effect between minority group status and fertility.

3. Neighborhood racial composition will not alter the pattern of association between socioeconomic status and fertility for the majority or any minority group, but will alter the level of fertility for both groups as follows: in predominantly majority neighborhoods, minority fertility will be lower than otherwise expected; in predominantly minority neighborhoods, majority fertility will be higher than otherwise expected.

No hypotheses are constructed concerning the effect of the final social characteristic, rural-urban-metropolitan residence. Instead, if warranted in the initial analyses, separate analyses will be undertaken on the rural, urban, and metropolitan subsamples.

DATA AND METHODS

The hypotheses will be tested on a sample of women aged 20-29, women at the peak of their reproductive years. The dependent variable will thus be current fertility. Most previous investigations have examined women at or near the end of their

reproductive years (e.g., Sly; Bean and Wood), in effect investigating completed fertility. While there are compelling reasons to focus only on women who have borne all their children, there is nothing inherent in either the minority group status or the characteristics hypothesis that restricts its applicability to completed families. Indeed, an investigation of current fertility should complement the more usual focus. For example, if the minority group status hypothesis is upheld among young cohorts beginning their childbearing, then the pervasiveness of a minority group status effect will be even more strongly documented. If, however, the characteristics hypothesis is supported, then evidence will have been found that the minority group status effect is either (1) a phenomenon associated only with completed fertility, or (2) a phenomenon disappearing among recent cohorts.

The sample is drawn from the neighborhood characteristics files, five percent questionnaires, of the 1970 Public Use Samples of the United States Census for the East South Central Region (Alabama, Kentucky, Mississippi, Tennessee). All once-married women aged 20-29, living with their husbands, and classified as white, not of Spanish descent, or black, were selected for inclusion. This provided 5638 cases: 611 blacks, 5,027 whites.

Children ever born was chosen as the dependent variable. Of the independent variables, the social characteristics were measured as follows: husband's income (previous year's income in units ranging from 001 ($1 to $99) to 500 ($50,000 or more)); husband's education (years of school attended); husband's occupation (a ranking of thirteen major census categories);

and residence (a set of three dummy variables, with each couple assigned a score of one or zero based on its location in either a rural, urban, or metropolitan area). Race, or minority group status, was measured by a dummy variable, with black women assigned a score of one and white women a score of zero. Neighborhood of residence was categorized into a set of three dummy variables based on racial and ethnic composition: 0-15 percent black, 16-49 percent black, and 50-100 percent black.

In addition, four control variables were included. Their operational measures (with justifications in parentheses) are listed as follows: wife's age, in years (to account for possible racial differences in childbearing before age 30); wife's age at marriage, in years (to account for possible racial differences in the length of time exposed to marital pregnancy); wife's employment status, a dummy variable (to account for possible racial differences in female labor force participation); and wife's education, in years of school attended (to account for possible racial differences in access to contraception and in tastes for children).

Multiple regression analysis is used to test the data. Fertility is regressed on the independent and control variables separately and simultaneously to determine both their gross and joint effects. Subsequently, first-order multiplicative interaction terms between race and the other independent variables were created and introduced into additional regressions, in order to ascertain if any observed effects of minority group status are the result of (1) differing patterns of association

between those variables and fertility for blacks and whites, or (2) different levels of fertility between whites and blacks.

RESULTS

The coefficients for the unadjusted regressions are presented in column 1 of Table 1. Except for husband's income, all independent and control variables are related to fertility in the expected directions at the .001 level of significance, based on a F-test of each coefficient (or set of coefficients, in the case of dummy variables). Husband's education and husband's occupation both reveal a negative association with fertility, as predicted in the first hypothesis. Residence reveals a typical pattern--fertility is highest in rural areas, lowest in metropolitan areas, and intermediate in urban areas. Importantly, minority group status (race) is strongly related to fertility; blacks on the average have almost one more child per couple than whites. Neighborhood of residence reveals a consistent outcome--mostly white neighborhoods have lower fertility than moderately black neighborhoods, which in turn have lower fertility than mostly black neighborhoods. Those findings are consistent with the expectation of a minority group status effect, but the relative impact of neighborhoods cannot be assessed without adjusting for all the other variables in the model.

The coefficients for such an adjusted run are presented in column 2 of Table 1. Most coefficients do not change greatly, although some diminish in magnitude. Of the socioeconomic status variables, only husband's education maintains significance, but

the negative sign on this coefficient is in the direction predicted. Race continues to reveal a strong positive coefficient, indicating the existence of a minority group status effect on fertility. Moreover, the fact that the coefficients for neighborhood of residence decline to near zero and are no longer statistically significant indicates that neighborhood racial composition does not explain much of the racial difference. This finding is in opposition to the expectations of the third hypothesis. Nevertheless, tests for interaction must be undertaken before the third hypothesis can be rejected, and in order to test the second hypothesis.

The set of race by social characteristics and the set of race by neighborhood multiplicative interaction terms were added to the additive terms separately and sequentially. Only the set of race by social characteristics interactions added significantly to the square of the multiple correlation coefficient for the additive regression. The failure of the set of race by neighborhood interactions to add a significant increment to the multiple correlation coefficient, is strong evidence against the third hypothesis; apparently the relationship between race and fertility does not vary between neighborhoods of differing racial composition.

The outcome of the regression containing the additive terms plus the set of race by social characteristics interactions is presented in column 3 of Table 1.

Few of the coefficients for the independent and control variables change perceptibly. Of the interaction terms themselves, all but that for race by husband's income are significant.

Both race by husband's education and race by husband's occupation reveal negative coefficients significant at $p < .01$. This finding supports both the first and second hypotheses. The negative relation between these two socioeconomic status variables and fertility, already established for the entire sample, is even more negative for the black portion of the sample, as the second hypothesis predicts.

The coefficients in Table 2 reveal some interesting differences. In rural areas, race has a strong positive effect on fertility, with blacks averaging over one child per family more than whites in the additive regression. Education is the only other independent variable revealing a statistically significant effect, a negative association with fertility. This finding duplicates that for the entire sample, and supports the first hypothesis. Nevertheless, the absence of a significant race by husband's education interaction effect implies that blacks and whites have the same relationship between education and fertility. Still, the race by husband's income interaction term is significant, revealing that blacks and whites exhibit a different association between income and fertility. Thus, for one variable, education, blacks and whites exhibit similar patterns of relationship with fertility, with blacks at a higher level; however, for another socioeconomic status variable, income, blacks and whites exhibit different patterns of relationship with fertility, with blacks having a more negative relationship. Both findings are evidence of minority group status effects--the finding for education a <u>levels</u> effect, the finding for

income an interaction effect--but only the latter outcome supports the second hypothesis. The third hypothesis receives no support, since the neighborhood population composition variables fail to attain statistical significance.

The urban subsample reveals similar coefficients, with race again exhibiting a strong positive effect. However, none of the socioeconomic status variables are significant, except occupation in interaction with race. For occupation, blacks have a more negative association with fertility than whites, a finding consistent with the second hypothesis. Again, however, the third hypothesis fails to be supported--the neighborhood population composition coefficients are not significant.

The metropolitan subsample reveals somewhat different results. Although race reveals a statistically significant and positive effect on fertility, that effect is much smaller than in the urban or rural subsamples (on the average, black couples have only about one half child more than white couples). None of the socioeconomic status variables are significant, nor are any of the race by socioeconomic status interactions. Consequently, for all socioeconomic status variables, the minority group status effect is a levels effect; the second hypothesis receives no support at all for this subsample. Nevertheless, the third hypothesis receives strong support. The significant negative coefficients for mostly and moderately black neighborhoods indicate that, after the other variables are controlled, the higher the percentage of whites in a neighborhood, the lower the fertility in that neighborhood. The difference is not great--about one-quarter of a child, on the average, between mostly

white and mostly black neighborhoods--but it is in the predicted direction. Why neighborhoods should reveal an effect only in metropolitan areas, and why other findings vary along the rural-urban-metropolitan continuum, are explored in the final section.

CONCLUSIONS AND DISCUSSION

The findings thus offer partial support for the three hypotheses. Minority group status clearly has an effect on fertility, an effect that varies between rural, urban, and metropolitan areas. In each area, blacks have higher fertility than whites, but the way that the other variables affect fertility varies considerably. In rural areas, there exists an independent effect of education on fertility, and an interaction effect between income and race on fertility. In urban areas, there exists an interaction effect between occupation and race on fertility. Finally, in metropolitan areas, neighborhood of residence has an independent effect on fertility.

Just why these particular outcomes emerge deserves closer scrutiny. At a minimum, there are apparently important differences between rural, urban, and metropolitan areas in the forces that affect fertility. But why should education reveal an effect on fertility only in rural areas, or why should different patterns of association between occupation and fertility for blacks and whites emerge only in urban areas? The explanation may rest, for example, in the nature of the sample; these findings may be peculiar to the study of current fertility. Alternately, some additional unmeasured variable may be at work. The difficulty

of pinpointing all the possible forces makes the construction of a comprehensive explanation beyond the scope of this paper. Instead, only the finding of neighborhood effects on fertility in metropolitan areas will be given closer inspection. Nevertheless, the problem of explaining different outcomes by areas of residence should not obscure the larger discovery that, regardless of where one lives, race is the most important factor affecting fertility.

The finding of a neighborhood effect only in metropolitan areas may reflect the fact that the concept of neighborhoods as a behaviorial referent is valid only in areas of greatest population concentration. Since metropolitan neighborhoods are compact geographically, there are a considerable number in each metropolitan area (even with the 4,000-5,000 population criteria of the current sample). Consequently, the possibility for neighborhood diversity is greater than in rural or urban areas; in metropolitan areas, the choice of where one lives may more closely mirror one's tastes and preferences, including those for fertility. In short, metropolitan areas facilitate the possibility for couples, regardless of race, to live in neighborhoods more consistent with their own fertility experiences. Whether selective socialization is the underlying factor, or migratory selection, or some other force, is untestable from this data. Nevertheless, the higher rates of residential mobility in most metropolitan areas suggest that the emergence of neighborhood effects there derives in part from the greater opportunity for couples to locate in neighborhoods where their own fertility is normative.

TABLE 1

Regression Solutions for Estimating Fertility
(N=5638)

Variables	Unadjusted	Adjusted Additive	Adjusted Interactive
Social Characteristics			
Socioeconomic Status			
Husband's Education	-.129[a]	-.022[a]	-.016[b]
Husband's Income	.001	+.000	+.000
Husband's Occupation	-.005[a]	-.000	-.000
Residence			
Rural	.385[a]	.055	.005
Urban	.110[a]	.023	-.043
Metropolitan	*	*	*
Race (Minority Group Status)			
Black	.882[a]	.883[a]	1.030[a]
White	*	*	*
Neighborhood Population Composition			
0-15% Black	-.587[a]	.007	-.049
16-49% Black	-.277[a]	.029	-.035
50%-100% Black	*	*	*
Controls			
Wife's Age	.183[a]	.210[a]	.210[a]
Wife's Age at Marriage	-.197[a]	-.193[a]	-.195[a]
Wife's Education	-.201[a]	-.075[a]	-.073[a]
Wife's Employment Status			
Employed	*	*	*
Not Employed	.719[a]	.500[a]	.495[a]
Interactions			
Race by Social Characteristics			
Race by Husband's Education	*	*	-.035[b]
Race by Husband's Income	*	*	+.001
Race by Husband's Occupation	*	*	-.004[b]
Race by Rural Residence	*	*	.465[a]
Race by Urban Residence	*	*	.565[a]
R^2		.460	.466
F		400.1[a]	288.3[a]

*Deleted from regression.

a. p<.001 b. p<.01 c. p<.05

TABLE 2

Additive and Interactive Models for Estimating Fertility:
Rural, Urban, and Metropolitan Subsamples

Variables	RURAL		URBAN		METROPOLITAN	
	Additive	Interactive	Additive	Interactive	Additive	Interactive
Social Characteristics						
Socioeconomic Status						
Husband's Education	-.032[a]	-.026[b]	-.003	.002	-.016	-.010
Husband's Income	-.000	-.000	.001	.001	-.001	+.000
Husband's Occupation	+.000	+.000	-.001	-.001	.001	-.001
Race (Minority Group Status)						
Black	1.056[a]	1.830[a]	1.228[a]	1.603[a]	.444[a]	.777[a]
White	*	*	*	*	*	*
Neighborhood Population Composition						
0-15% Black	-.007	.019	.186	.173	-.234[b]	-.248[b]
16-49% Black	.020	.037	.165	.152	-.176[c]	-.189[c]
50-100% Black	*	*	*	*	*	*
Controls						
Wife's Age	.211[a]	.209[a]	.202[a]	.202[a]	.211[a]	.216[a]
Wife's Age at Marriage	-.212[a]	-.212[a]	-.179[a]	-.179[a]	-.178[a]	-.179[a]
Wife's Education	-.065[a]	-.065[a]	-.099[a]	-.098[a]	-.070[a]	-.069[a]
Wife's Employment Status						
Employed	*	*	*	*	*	*
Unemployed	.497	.487[a]	.454[a]	.457[a]	.525[a]	.529
Interactions						
Race by Social Characteristics						
Race by Husband's Education	*	-.037	*	-.039	*	-.036
Race by Husband's Income	*	-.007[c]	*	.006	*	.003
Race by Husband's Occupation	*	-.004	*	-.007[c]	*	-.001
R^2	.456	.457	.456	.461	.460	.461
F	215.7	180.0	101.4	79.2	155.6	120.2

* Deleted from the regression.

a. $p<.001$ b. $p<.01$ c. $p<.05$

FOOTNOTE

1. A minority group is a racial, religious, or ethnic population which meets the following additional criteria: (1) small size relative to the total societal population (Blalock, 1967:146); (2) "a relatively clearly defined subculture and separate pattern of social interaction . . ." (Petersen, 1964:237); (3) an historical pattern of opposition from and discrimination by the dominant population (Petersen, 1964:237); and (4) a membership determined by ascription through a "socially invented 'rule of descent'" (Wagley and Harris, 1959:7). Since except for Jews all minority groups which fit the above definition are either racial or ethnic in origin, the terms "ethnicity" and "race" will be used interchangeably with the term "minority group status."

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